

MINUTES

Subject: Berrima Colliery Closure Working Group

Location: Berrima Colliery

Date & Time: 11 February 2019, 9:30 am

Independent Chair: **Brad Mullard**

Attendees:

Greg Kininmonth – Manager Environmental Operations Southern, Resources Regulator

Andrew Couldridge – Environment Protection Officer EPA Wollongong

Barry Arthur – Manager Environment and Sustainability Wingecarribee Shire Council

Ravi Sundaram – Mining Catchment Specialist – WaterNSW

Clive West – Local Resident

Julian Brophy – Local Resident (by phone)

Alan Lindsay – Local Resident

Ray Nolan – Local Resident

Graham Kelly – Local Resident

Dr Ian Wright – University of Western Sydney

Dr Jason Reynolds – University of Western Sydney (Guest)

Boral Personnel:

- Greg Johnson** – Environmental Sustainability Manager - Boral Cement
- Fabio Colusso** – General Manager Commercial and Contracts – Boral Cement
- David Spears** – Project Manager - Boral Cement
- Chris Maher** – Mine Manager Berrima Colliery

Minutes: **Robert Byrnes**

Apologies:

- Will Miltry** – Resources Regulator
- William Dove** – Unit Head Regulation Illawarra, NSW Environment Protection Authority

These minutes reflect the presentation and consequent conversations conducted as part of this meeting. The content, while an accurate summation of proceedings, should not be taken to represent exact dialogue unless specifically minuted as such.

For the full presentation, visit www.boral.com.au/berrimacement. Minutes do not become 'official' unless endorsed at the following community meeting by the appropriate representatives.

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Meeting opened – 9:30 am

1. Welcome

Brad Mullard (BM) welcomed attendees to the 3rd meeting of the Berrima Colliery Closure Working Group. Noted Julian Brophy as attending by phone and apologies from William Dove from EPA. Will Miltry from the Resources Regulator is now working in another group and will no longer be attending these meetings.

Chris Maher (CM) provided an additional welcome to Berrima Colliery and provided some housekeeping and safety matters. Discussion on the conduct of the site tour to be conducted at the end of the meeting.

2. Minutes from 8th October 2018 meeting

BM – noted actions from the previous minutes

Greg Johnson (GJ) noted previous actions and updated on media releases. Minutes were hosted on the web page. provided more information on sediment removal, data provided in the presentation, EPA report on line. Terms of reference change as per meeting outline.

Julian Brophy (JB) raised that the media releases were not reviewed by the community prior to release. Need more transparency and communication prior to releasing information to the community.

GJ Boral has a policy and internal process that must be followed with media releases because it is a public company.

JB If Boral won't change the media release, then members of the community group need the opportunity to comment prior to release.

GJ We will take these comments on board but stressed that Boral must abide by its internal protocols in relation to media releases.

BM the Minutes as provided are considered accepted.

2. Boral Presentation

The presentation by GJ covered monitoring data obtained since the previous meeting. Main points discussed were:

- Condition of limestone used in the treatment process was shown. This was a result of the 42 L/s pumping over the limestone bed. There is an agitation where the limestone wears down and a mixing zone where the iron and minerals precipitate out. The black represents manganese
- Estimated metals removed as per presentation.
- Graphs provided showing progress of the underground treatment system
- Graphs provided showing water quality within the Wingecarribee River and Performance Monitoring Program water quality results.
- Up until Nov/Dec 18 river flow data showed the river being low but with notable rain events.
- Water being discharged is now at the same levels as historically occurred when the mine was operating
- Water prior to treatment, being the natural groundwater in the underground sump location is the same as 18 months ago. The treatment system is working well in removing minerals. Improvement were offset by very low flow.
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- WaterNSW had commenced a water transfer between Wingecarribee Reservoir and Warragamba Dam.

3. Discussion on Water Quality Results

Alan Lindsay (AL) What was the water flow from the mine during the period

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Fabio Colusso (FC) about 2.5 to 2.7 Megalitres per day

BM do you need to clean the limestone

GJ the limestone is moved around for cleaning.

Ravi Sundaram (RS) there has been water transfers from the Shoalhaven into the Wingecarribee. First time for 5 years. Started 27th November 2018 for a short period and then recommenced in December, now steady at 20 ML per day.

GK The notifications of the transfers has been highly beneficial to the project team taking water samples in the river.

RS There is also the normal 2 ML/day discharged from the Wingecarribee Reservoir for environmental flows. This is in addition to the 20 ML/day supply to Sydney.

GJ pH doesn't seem to effect downstream water pH. Conductivity is around 300µS/cm upstream, the mine discharge is 900µS/cm but conductivity quickly drops down to 500 downstream. Anything below 500 is considered fresh. Sulphate is elevated but quickly drops back down to 150 mg/l further downstream. The treatment system does not seem to reduce sulphate.

GJ Iron drops out rapidly, averaging 3.5 mg/L but currently discharging 0.5 mg/L compared to around 18mg/l when Ian Wright did his initial study

GJ Manganese also drops out within the mixing zone and rapidly drops down to 1mg which is within ANZECC default guidelines of 1.9 mg/L. Nickel and zinc are very low upstream, it is elevated at the discharge and takes longer to drop out down-stream. The levels for both are below ANZECC at Bileola.

BM any further questions arising.

Ian Wright (IW) wants to an update on access for water sampling

GJ access is still difficult at the 100 m up stream site but we are working on ways of getting the samples. Drone trials are continuing. We have completed trials of sampling methods to avoid aeration issues. Can take up to 5 litres but we won't be taking this much.

GJ Discharge is variable and recharge not as great as before

Andrew Couldridge (AC) we have notice around Berrima that people's bores are not recovering the same as before

GJ there will be a period of no flow following the installation of the bulkheads.

David Spears (DS) the work will include determining data in relation to the bulkheads and water build-up. It will take 6 months to increase the level by 4 m above the bulkheads. However the water could just come around the bulkheads as the current groundwater model suggests.

FC this is a big investment to determine the accuracy of the groundwater model.

GJ the design of the project includes the ability to obtain data which in turn will be used to determine final closure options.

GJ provided details of the aquatic ecology studies. Some impacts found in the river just below the discharge but not further downstream.

AC I have seen some aquatic ecology studies in the area that shows there is a change in species in the river.

IW it may take up to a year to see changes due to the life cycle of the organisms

4. Update on Bulkheads

DS Preparation work has been completed and now doing localized grouting around the bulkhead locations and will start installing first bulkhead by end of February. Installation should be completed by June.

BM are you grouting to avoid seepage through fracture zones

DS yes and the grouting pattern is intense to give every possible chance of success but have also found fractures in the floor. Grout is a few metres around each bulkhead site

CW basically is like waterproofing in a bathroom

DS Yes, in 6 months' time we will know if they work or not.

DS details of bulkhead dimensions provided, method of installation and instrumentation

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AL is the cement pumped from the surface

DS will be mixed and foamed underground. Taken down in bags and mixed underground. Mixed in two phases to allow shrinkage

AL is this process and design unique

DS no it has been done before but perhaps it is the first time it has been done for this reason

DS we are trying to do as much as possible to seal each bulkhead, under normal circumstances you may not use all the things we are doing. We are trying to gather data and therefore disprove the current groundwater model. But there are many variables as well as dykes and structures with higher permeability and concentrations of minerals. The geology is complex.

CW we are interested in the variability due to geology

GJ we are also updating the MOP to include Loch Catherine mine. Closed in 1959 but the entries were never sealed. Access is via an old drift which has been established. The MOP will provide a sealing design and method. Bent wing bats are present and habitat protection is required.

FC need to prevent public access though it is a difficult site to get to. There are two methods, either push material into the adit and/or construct fence barriers, then rehabilitation of the site and drift.

5. Communications

FC we have updated the communications strategy and will include distribution of newsletters, quarterly updates in newspapers and community meeting to be organized. Will provide a link to documents on the web page on a micro site. Creation of a short video to show what we are doing in simple terms.

JB what your suggesting is the minimum that would be expected. The micro web site is a good idea to provide data to the community. Can the presentations to the community be put on the web.

GJ yes anything that is released to the closure working group will be placed on the web page. Any agreements reached or documents provided will be provided on the micro web site.

JB make sure that there is enough information on how we got here, what took place, what the problem is, how we got to this situation and what is being done to fix it.

GJ we can include a Q&A style section.

JB put in the effort on how we got to this situation. Requested information on the presentation to be sent through.

6. General Business

RS provided information on WaterNSW's role and responsibilities with specific regard to the Sydney drinking water catchment, mining activities in the catchment, and the Wingecarribee River. WaterNSW's primary role is the management of dams & water supply infrastructure and catchment protection, to provide quality water to its customers in accordance with the *Water NSW Act 2014*. WaterNSW provides advice to DPE on developments (including mining) in the catchment under the *EP & A Act*. The *State Environmental Planning Policy (Sydney Drinking Water Catchment)* requires all proposed development in the Greater Sydney drinking water catchment to have a neutral or beneficial effect on water quality (NoeBE). The Berrima Mine Closure project also needs to meet NorBE requirements. WaterNSW has developed its Mining Principles which define the environmental outcomes it expects from mining activities in the catchment and can be downloaded from the WaterNSW website.

The Wingecarribee River is part of WaterNSW's water supply transfer system and water transfers are made from time to time by WaterNSW based on operational needs from Wingecarribee Dam to Lake Burragorang/Warragamba Dam.

RS clarified that WaterNSW owns and operates the dams in the Sydney drinking water catchment.

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Members can also find more information with regards to WaterNSW management of mining activities in the catchment including the Mining Principles at the following link:

<https://www.waternsw.com.au/water-quality/catchment/mining>

Greg Kininmonth (GK) the Resources Regulator is doing an audit of the Subsidence Management Plan approval in recognition of some of the subsidence issues in the mining area. The purpose is to demonstrate compliance with approval conditions. This will be done next week

Ray Nolan (RN) the communication plan is good that the community is under no doubt what is happening

GK there has been some facebook messages in relation to the Berrima.

AL and **CW** both remarked that they have not heard anything about it.

AL Eagle Rock bore gone up 10 m

RN got a call from a disgruntled resident in the mining area about bore water

BM final comments and next meeting date

GJ not much will be happening over the next few months while we construct the bulkheads so a meeting in 6 months' time around August would be appropriate.

IW Date Ok but need to provide updates on water quality data in the mean time.

FC Public meeting maybe held in March but this would be more general in nature.

GJ Dates to be circulated for a time and place in August for the next meeting. Ecology in April so results will be available prior to meeting.

CW offered to see if the church hall in Berrima could be an option.

GJ will be finalised over the next month and everyone informed

BM formal meeting closed, site visit for those interested was then conducted.

Meeting Closed 12 noon

Next Meeting August 2019, Berrima Church Hall if available.